DOCUMENT RESUME

ED 380 092 IR 017 013

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TITLE Two Applied Revisions of a Multimedia Tool: Assessing Attitudes Towards Computer Technology and Cultural Diversity.
PUB DATE [95]
NOTE 5p.; In: Imagery and Visual Literacy: Selected Readings from the Annual Conference of the International Visual Literacy Association (26th, Tempe, Arizona, October 12-16, 1994); see IR 016 977. Figure 2 contains very small illegible print.
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Attitude Measures; Computer Uses in Education; Cultural Pluralism; Educational Technology; Elementary Secondary Education; *Multicultural Education; *Multimedia Materials; Opinions; *Program Development; Student Attitudes; Teacher Attitudes

ABSTRACT

This report presents the progress on the development and early testing of two applications of a modular multi-media attitude assessment system. Built using a template created in "Authorware," a dual platform interactive multimedia development tool, these systems employ visuals, audio, and text to discern attitudes and elicit reactions regarding the target areas. The first application is an evolving instrument which explores educators' attitudes toward the use of technology, especially computers, in school settings. The development of the application and the first classroom test of the latest revision are described. The second application adheres to the premise that in designing an effective multicultural learning experience, the evolving attitudes of the people who receive such training must be assessed, to be used first as a diagnostic of the present condition, then as a planning tool for interventions and a measure of change. It also focuses on multicultural education themes such as cultural pluralism on university campuses, and stresses teaching strategies and social interactions which affirm the rights of all members of learning communities to be different and emphasize their responsibilities to respect differences. (MAS)

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Two Applied Revisions of a Multimedia Tool: Assessing Attitudes Towards Computer Technology and Cultural Diversity

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ED 380 092

At the 1994 International Visual Literacy Association conference in Tempe, AZ the authors presented a progress report on the development and early testing of two applications of a modular multimedia attitude assessment system. Built using a template created in *Authorware*, a dual platform interactive multimedia development tool, these systems employ visuals, audio, and text to discern attitudes and elicit reactions regarding the target areas.

Using multimedia as a means of survey research has many attractive features. Among these are ease of data handling, the ability to provide varied stimuli to respondents, simplicity of modification, and the option to use one template as the base for research instruments in a broad range of areas. The two applications covered in this paper share a concern with assessing attitudes and a generally similar structure, but the presentation, the audio visual resources, and the content of the text stimuli are considerably different.

Assessment of attitudes toward computers

The first application is an evolving instrument which explores educators' attitudes toward the use of technology, especially computers, in school settings. The rationale holds that surveying a group using the tool that is the subject of the survey adds an extra dimension to the interactions and *might* have some effect on the attitudes of participants. A version of this system was introduced at the 1993 IVLA conference in Rochester, NY and described in the proceedings of that conference (Hergert & Holmes, 1994). The feedback from that presentation helped the developers in two subsequent revisions of the program – thereby streamlining the interaction for participants; increasing visual references; improving the scope, content, and efficacy of the provocative statements; and integrating the multimedia resources into a self-contained delivery system.

On beginning the application, users need to know only basic keyboarding and how to move and "click" a computer mouse (see Figures 1 and 2). On-line instructions lead users through the interactions. The system is divided into nine or ten sets of interactions, depending on the version. The majority of information is acquired through a click-and-drag "slider" system that records responses to provocative statements on a Likert scale from Strongly Disagree to Strongly Agree

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(see Figure 3). In revision three (see Figure 4) the screens contain four still images, four provocative statements, and their attendant sliders. The interactions and their response types are:

1) Acquisition of demographic data (keyboarding)
2) Skills and knowledge test (mouse clicks, keyboarding, and click-and-drag)
3) Initial attitude survey (Likert sliders)
4) Play and watch video vignette 1 (click or operate VCR)
5) Reactions to vignette 1 (Likert sliders)
6) Play and watch video vignette 2 (click or operate VCR)
7) Reactions to vignette 2 (Likert sliders)
8) Exit attitude survey (Likert sliders)
9) Instrument evaluation (Likert sliders–third version only)
10) Instrument evaluation (keyboarding–all versions)

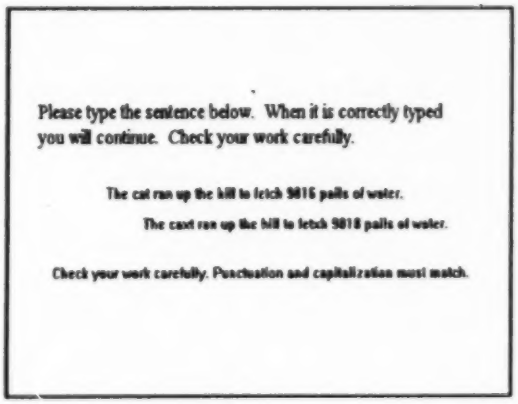
Please type the sentence below. When it is correctly typed you will continue. Check your work carefully.
The cat ran up the hill to fetch 9816 pails of water.
The cast ran up the hill to fetch 9818 pails of water.
Check your work carefully. Punctuation and capitalization must match.

Figure 1. Keyboarding (versions 1-3)

The revised instrument (version 2) was first tested in the spring of 1994 with a sample population of elementary school teachers and administrators using the Windows version and a separate video cassette player, displaying the video vignettes in the center of the computer screen. The operation of the video player caused logistical difficulties for a number of respondents. In this first trial it was observed that among the participants who seemed to be least fluid in the physical operation of the computer system, as gauged by time spent on task, there was a positive shift in attitude from the initial survey to the exit survey. This shift was noted and continues as a focus of the study throughout its evolution.

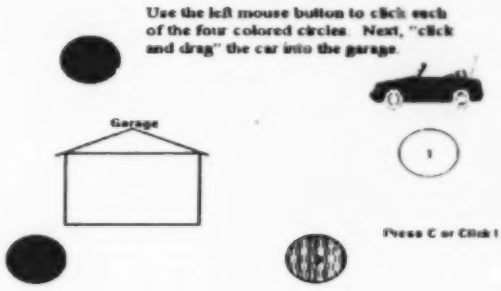

Figure 2. Mouse Skills (versions 1-3)

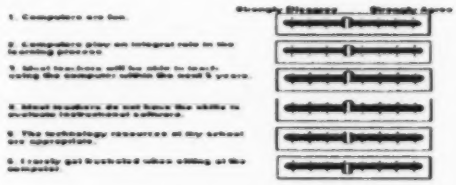

Figure 3. Attitude Survey (versions 1&2)

The third version of the system was developed on the Macintosh platform in order to exploit its apparent advantages in handling audio visual resources. The provocative statements were revised so that some now address the learning styles of participants. Tested on a sample of 40 educators and university students, version three suggests further adaptations that will be valuable in using the system to assess the attitudes of larger populations.

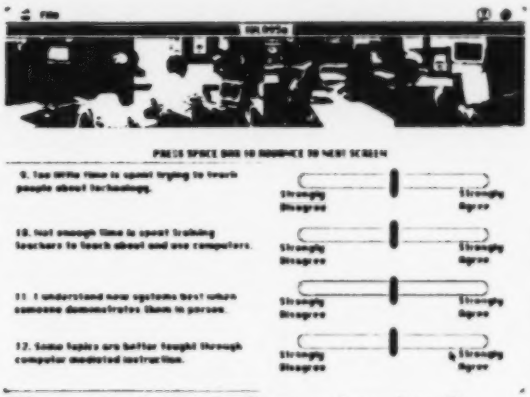

Figure 4. Attitude Survey (version 3)

The Mac version employs QuickTime digital movies and more digitized graphics, integrated into the application and displayed via the computer alone. This choice simplifies the hardware installation of each system and makes it possible to use computers already on-site as delivery mechanisms. Rather than transporting an entire computer system, a video player, and a video monitor to a survey location, small portable hard drives can be attached to most models of Macintosh computers at remote locations, which will then deliver the whole application.

The team plans one more revision for this application which will reflect feedback from both 1993 and 1994 IVLA presentations, reactions from pilot group respondents, and assistance from within our university community. It will be deliverable via both Macintosh and Intel-based platforms, probably using CD-ROMs. The planned version will be employed in projects such as the integration of local public schools into the Blacksburg Electronic Village to assess teacher's and administrator's current attitudes and to aid in planning training and other interventions.

Assessing attitudes and encouraging dialogue on multiculturalism

Visual cues serve as a major determinant in the formation of attitudes -- either positive or negative. Attitudes and beliefs regarding cultural diversity can be influenced by things people see – the cues for preconceptions and prejudices are often visual. Positive learning experiences may serve as one strategy to prevent or combat the formation of such negative attitudes.

One emphasis in designing an effective multicultural learning experience must be the assessment of the evolving attitudes of the persons who might receive such training, first as a diagnostic of the present condition, then as a planning tool for interventions, and a measure of change. Interactive multimedia offers an opportunity to use evocative imagery to illuminate the target attitudes and preconceptions. Automatic data gathering through such systems also increases the value of the tools and their ease of use.

The second application reported in this paper adheres to the above premises in focusing on multicultural education themes regarding cultural pluralism on university campuses. Vignettes from a

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video tape entitled "A Community of Conscience," produced at Virginia Tech, and reported by orientation leaders to have some influence on positively shaping the attitudes of incoming freshmen toward cultural tolerance, are used as primary interventions. The approach stresses teaching strategies and social interactions which affirm the rights of all members of learning communities to be different and emphasize their responsibilities to respect differences.

Showings of the above-mentioned video and subsequent group interactions during freshman orientation have provoked lively discussion and even some epiphanies among participants–students, parents, and faculty. However, the informal nature of the discussions has made recording and accurately reporting reactions, exchanges, and outcomes imprecise at best.

Reuse of the Design

By reusing the design of the first application and repurposing its content, the authors have explored a way to facilitate data acquisition and analysis in systematically addressing some of the issues described above. Practical constraints common to university campuses such as inconvenience, distance, and inaccessibility of target audiences are more easily overcome by these means.

The present modular system allows integration of media developed or chosen by researchers or administrators for specific attributes. Changing media resources can be effected as the presentation opportunities, the target audiences, or the goals of a project evolve . Provocative statements reside in text files that can be created/edited on almost any computer while digital still images and QuickTime digital video scenes can be selected and included relatively easily.

The research team will continue work on this instrument and is actively pursuing other possible applications for this system. Delivery through the Internet will give access to larger and more varied populations, resulting in larger data sets for improved statistical analysis of results. The potential uses of this type of instrument expand as the capabilities of the hardware/software grow.

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